UTAH
H5/H7 LPAI AVIAN INFLUENZA SURVEILLANCE, RESPONSE, AND CONTAINMENT PLAN

I. JUSTIFICATION

(A) Avian influenza (AI) is a disease of increasing worldwide importance with growing implications as a human disease threat.

(B) The potential for low pathogenic (LP) varieties of AI to mutate to highly pathogenic (HP) strains, affecting domestic poultry, is significant.

(C) Additional driving forces for a national H5/H7 avian influenza control plan consist of:

1. The World Organization for Animal Health (OIE) has defined notifiable avian influenza (NAI) as described in Article 2.7.12.1:

> For the purposes of the *Terrestrial Code*, avian influenza in its notifiable form (NAI) is defined as an infection of poultry caused by any influenza A virus of the H5 or H7 subtypes or by any AI virus with an intravenous pathogenicity index (IVPI) greater than 1.2 (or as an alternative at least 75% mortality) as described below. NAI viruses can be divided into highly pathogenic notifiable avian influenza (HPNAI) and low pathogenicity notifiable avian influenza (LPNAI):
>
> a. HPNAI viruses have an IVPI in 6-week-old chickens greater than 1.2 or, as an alternative, cause at least 75% mortality in 4-to 8-week-old chickens infected intravenously. H5 and H7 viruses which do not have an IVPI of greater than 1.2 or cause less than 75% mortality in an intravenous lethality test should be sequenced to determine whether multiple basic amino acids are present at the cleavage site of the hemagglutinin molecule (HA0); if the amino acid motif is similar to that observed for other HPNAI isolates, the isolate being tested should be considered as HPNAI;
> b. LPNAI are all influenza A viruses of H5 and H7 subtype that are not HPNAI viruses.

to include not just highly pathogenic, but all H5/H7 viruses including low pathogenic strains; and

2. Influence of international markets on the economic viability of our nation's poultry industry dictates it is in the best interests of government, human health, and the poultry industry to prevent and control all H5/H7 avian influenza virus infections.

(D) H5/H7 avian influenza is a disease reportable to the State Veterinarian's office by all licensed or otherwise legally practicing veterinarians in the State and all laboratories.

(E) Under a nationally-sanctioned plan, USDA-APHIS would be involved at the request of the Cooperating Official State Agency (Utah Department of Agriculture and Food, specifically, the State Veterinarian's Office) in the cost and control efforts of an outbreak. This Voluntary Cooperative State–Federal Program to control and eradicate H5/H7 avian influenza infections of commercial poultry is state-based and coordinated. In the event of

an outbreak of H5/H7 LPAI, the Cooperating Official State Agency is eligible for payment of 100% of the costs of surveillance and monitoring and 100% of the costs of vaccine administration, as determined by this cooperative agreement. This agreement will be made between the Cooperating Official State Agency and APHIS.

(F) The Utah Avian Influenza Surveillance, Response and Containment Plan (i.e., "Plan") will provide for stakeholder input and participation, establishment of passive and active surveillance programs, and planning for a coordinated, pre-planned response in the event of an AI outbreak in the state. The goal is to provide a level of assurance to poultry producers and trading partners and an adequate level of surveillance and response preparedness for government.

II. AVIAN INFLUENZA ADVISORY COMMITTEE

The formation of a state advisory committee has been requested by industry in order to bring all stakeholders such as Utah Department of Agriculture and Food (UDAF), USDA-APHIS, Utah Department of Health, and various producer groups together to provide Plan input. The formation of this committee is the first essential element to development of a state AI response plan. It is agreed that the AI Advisory Committee in Utah will be comprised of the following participants:

(1) Director of Animal Industry or representative
(2) State Veterinarian
(3) USDA-APHIS Area Veterinarian in Charge (AVIC) or representative
(4) Utah Department of Health representative
(5) Utah Veterinary Diagnostic Laboratory representative
(6) Utah State University Extension
(7) NPIP Contact representative
(8) Utah Egg Producer's representative and/or consultant
(9) Utah Turkey Marketing Board representative
(10) Game bird representative (pheasant, chukar, quail, etc.)
(11) Utah Fancy Poultry Association/Pigeon Breeders representative
(12) Utah Division of Wildlife Resources representative
(13) Department of Environmental Quality representative

This committee will convene once a year to review the State's AI emergency disease management status. Training in emergency disease management, biosecurity, diagnostics, and other relevant topics including exercises in handling different scenarios of outbreaks of H5/H7 AI will be given by appropriate personnel at this annual meeting.

III. MONITORING PLAN

(A) The State will maintain "U. S. H5/H7 Avian Influenza Monitored State" status under the National Poultry Improvement Plan (NPIP) program for avian influenza (see Appendix #1). In furtherance of that requirement the following surveillance activities will be implemented:

(B) All commercial producers where LPAI is detected will establish a written flock management agreement developed by APHIS and the State Veterinarian with input from the flock owner and other affected parties. Under this definition, a flock plan sets out the steps to be taken to eradicate H5/H7 LPAI from a positive flock, or to prevent introduction of H5/H7 LPAI into another flock. A flock plan shall include, but is not necessarily limited to, poultry and poultry product movement and geographically appropriate infected and control/monitoring zones. Control measures in the flock plan should include detailed plans for safe handling of conveyances, containers, and other associated materials that could serve as fomites; disposal of flocks; cleaning and disinfection; downtime; and repopulation. Each producer should also sign a *Memorandum of Understanding* (MOU) to support the diagnostic and active surveillance programs by timely submission of appropriate specimens.

(C) The Extension veterinarian (or appointee) will institute an ongoing avian influenza awareness program for all legally practicing veterinarians and pre-outbreak outreach programs for poultry producers and Extension agents in the state regarding the importance of prompt reporting of clinical symptoms consistent with avian influenza.

(D) It should be further understood that:

(1) *No liability shall accrue to the UDAF for damages, losses, or injuries incidental to or arising by virtue of participation in this Plan.*

(2) *The flock owner has the responsibility to adopt and implement the biosecurity measures set forth elsewhere in this agreement.*

(3) *The flock owner has the responsibility of maintaining records of flock morbidity, mortality, and production and shall make such records available for review by the UDAF as requested.*

(E) Serology

(1) *Approved Laboratories*

(a) Utah Veterinary Diagnostic Laboratory, Logan, Utah
950 East 100 North, Logan, Utah
NAHLN Laboratory
Contact person: Dr. Tom Baldwin – (435) 797-1895
Tests available: AGID, ELISA, RT-PCR
Test capacity:
AGID: routine = 300/week; surge = 700/week
ELISA: routine = 500/week; surge = 3000/week
RT-PCR: routine = 400/week; surge = 1000/week

(b) Utah Veterinary Diagnostic Laboratory, Provo, Utah

1451 South Main, Nephi, Utah
NAHLN Laboratory
Contact person: Dr. Jane Kelly – (435) 623-1402
Tests available: AGID, ELISA, RT-PCR
Test capacity:
AGID: routine = 100/week; surge = 300/week
ELISA: routine = 500/week; surge = 1800/week

(2) *Testing*

(a) Serologic testing will be used as a screening test for monitoring purposes only. Routine screening for type A avian influenza virus in poultry will be performed using either agar gel immunodiffusion (AGID) or enzyme-linked immunosorbent assay (ELISA). The AGID test is to be performed according to the "National Poultry Improvement Plan and Auxiliary Provisions" §147.9[1]; ELISA test is performed using only federally licensed kits and following the manufacturer's instructions.

(b) A premise or flock will be considered suspect positive if serologic testing reveals antigenic exposure to Type A influenza virus.

(c) A premise or flock will be considered positive only when live (H5/H7) influenza virus is isolated or its presence detected by polymerase chain reaction (PCR) testing.

(d) Positive test results of any type will be reported immediately to the State Veterinarian, as required by Rule in R58-2-2. In the case of a positive serologic test, the State Veterinarian may issue a *Hold Order* and prescribe certain biosecurity measures to be implemented until virus identification is completed and/or assessment of the clinical symptoms exhibited by the flock is made.

i) Hold Order is defined as authority of the State Veterinarian to impose movement restrictions and/or testing requirements appropriate to conditions until a definitive diagnosis or quarantine decision is reached. The Hold Order may involve all or any portion of restrictions defined under Quarantine Measures (see section V) as deemed appropriate to the circumstances by the State Veterinarian.

(3) *Passive Surveillance*

(a) All laboratories that perform diagnostic procedures on avian species (private, State-Federal Cooperative, public health, and university laboratories) will examine all submitted cases of severe, atypical, or otherwise unexplained respiratory disease, gastrointestinal disease, neurologic disease, egg production drops, and high mortality, for avian influenza by both a USDA-approved serologic test and a USDA-approved influenza virus detection test. Results of such testing will be reported quarterly to the State Veterinarian. Positive tests will be reported immediately.

(4) *Active Surveillance*

[1] Laboratory protocol for the AGID test for avian influenza now requires no more than three unknowns be tested in a seven-well format with the center well containing antigen (9 CFR 147.9).

(a) UDAF in conjunction with USDA, APHIS, VS, Utah Veterinary Diagnostic Laboratory (UVDL), and commercial producer organizations will implement a commercial poultry surveillance program.

(b) A minimum of 11 birds per chicken layer flock are monitored quarterly (90 days) by serologic or other approved tests and reported quarterly to the State Veterinarian. Positive tests will be reported immediately.

(c) A meat-type turkey slaughter plant at which a sample of a minimum of 60 birds be tested each month by USDA-approved serologic protocol (i.e., AGID or ELISA) and reported quarterly to the State Veterinarian. Positive tests will be reported immediately. Plant records shall be maintained for 3 years (9 CFR 146.11.c).

IV. RESPONSE PLAN

The State Veterinarian and the USDA, APHIS, VS Area Veterinarian in Charge (AVIC) will administer an initial containment and control plan developed in conjunction with the Advisory Committee. The Commissioner of Agriculture may request the Governor to declare a state of emergency once state resources have been exhausted or are found inadequate. USDA-APHIS-VS will be invited to develop an Incident Command Center to implement the deployment of necessary state and federal resources to respond to the emergency outbreak.

(A) Definition of H5/H7 LPAI infection

(1) *Isolation of H5/H7 avian influenza virus from poultry*;

(2) *Detection of H5 or H7 subtype AI viral antigen in poultry*; or

(3) *Detection of H5 or H7 subtype AI viral antibodies in poultry that is not a consequence of vaccination.*

(B) Criteria for declaring a premise suspect-positive for AI

(1) *Epidemiologic link with an AI suspect flock or premise. An epidemiologic link is considered to be established if one or more of the following occur(s)*:

(a) Poultry operations employing workers who reside in the same household as person(s) associated with a confirmed AI outbreak elsewhere.

(b) All farms within the same organization that the AI outbreak occurs – particularly if there is sharing of equipment and/or personnel, or if close geographic ties exist.

(c) Poultry farms, companies, or personnel using common facilities or equipment, such as breaker plant, feed mill, egg flats, trucking company, vaccination crews, or other equipment.

(2) *Flock/bird with no clinical signs, no lesions compatible with AI, and no epidemiologic link but AI-positive by one of the following tests*:

(a) AGID

(b) ELISA[2]
(c) Directigen™ Flu A

(C) Criteria for declaring a premise positive for HP/LP AI during a confirmed AI outbreak:

(1) *Flocks/birds showing clinical signs of respiratory disease, sudden unexplained drop in egg production, or lesions consistent with AI (i.e., edema of the head, comb, or wattles; subcutaneous hemorrhage of feet or shanks; hemorrhage/necrosis of comb, wattles, trachea, heart, and/or gut) should be considered suspicious for AI until confirmed or ruled out by appropriate diagnostic tests.*

(2) *Premises inside surveillance zones are considered positive if birds exhibit clinical signs and/or gross lesions consistent with low or highly pathogenic avian influenza virus plus one of the following laboratory tests.*

(a) Isolation and identification of AIV
(b) Positive RT-PCR with H5 or H7 AIV specific primer/probe set
(c) Presence of H5 or H7 AIV subtype-specific serum antibodies

(3) *Premises inside surveillance zones without clinical signs and/or gross lesions, must meet two of the following conditions to be declared positive.*

(a) Directigen-positive (cannot be only criterion to designate a premise as positive even with an epidemiologic link)
(b) Isolation and identification of H5 or H7 subtypes of AIV
(c) Positive RT-PCR with H5 or H7 AIV specific primer/probe set
(d) Presence of H5 or H7 AIV subtype-specific serum antibodies
(e) Epidemiologic link. An epidemiologic link is considered to be established if one or more of the following occur(s):
(i) Poultry operations employing workers who reside in the same household as person(s) associated with a confirmed AI outbreak elsewhere.
(ii) All farms within the same organization that the AI outbreak occurs – particularly if there is sharing of equipment and/or personnel, or if close geographic ties exist.
(iii) Poultry farms, companies, or personnel using common facilities or equipment, such as breaker plant, feed mill, egg flats, trucking company, vaccination crews, or other equipment.

(D) Initial response plan for an AI-positive flock or premise

(1) *Positive AI serology (AGID or ELISA) without increased mortality or other clinical signs:*

(a) The flock or farm will be placed under Hold Order and strict biosecurity measures will be met. Procedures in Appendix #2 are to be immediately implemented. The State Veterinarian may exercise authority to impose additional measures if needed,

[2] Because of the possibility of false positives using ELISA, all ELISA-positive sera shall be re-tested using AGID.

such as vehicular traffic restrictions, restrictions of movement of eggs, live birds, dead birds, feed, and other commodities on/off the premises.

(b) All commercial poultry flock owners will be informed of the status of the Hold Order.

(c) Cloacal and pharyngeal swabs from birds in the affected flock shall be sent to UVDL for testing by RT-PCR.

(i) If RT-PCR is positive for either H5 or H7, the UVDL will immediately inform the State Veterinarian and the USDA-APHIS AVIC. Swabs will be forwarded to the National Veterinary Services Laboratories (NVSL) for sub-typing. NVSL will carry out virus isolation for characterization and pathogenicity testing. Initial subtype results should be obtained within 24 to 48 hours. Pathogenicity of the isolate is normally determined within 5 to 20 days.

(2) *Positive AI serology accompanied by significant unexplained on-farm mortality or other clinical signs*

(a) The flock or farm will be quarantined and strict bio-security measures will be met. As a minimum, all procedures in Appendix #2 are to be immediately implemented. The State Veterinarian may exercise authority to impose additional measures if needed.

(b) A quarantine zone around the affected premises will be imposed, and other company-owned or other related flocks will be assessed for risk based on levels of bio-security in place at the time of the outbreak.

(c) Pooled (up to five birds per tube) pharyngeal and cloacal swabs will be collected according to Table 1 and submitted to UVDL for RT-PCR testing.

(d) Tissues (lung, spleen, brains, and/or intestines) from individual dead birds will be sent to UVDL. Positive tissues will be forwarded to NVSL for virus isolation, characterization, and pathogenicity testing. All testing and collection of samples will be performed on-site using appropriate bio-security precautions.

(E) Response following definitive diagnosis of AI (subtype-dependent)

(1) *LPAI subtype H5 or H7*

(a) The flock or farm will be quarantined and strict bio-security measures will be met. As a minimum, all procedures in Appendix #2 are to be immediately implemented. The State Veterinarian may exercise authority to impose additional measures if needed.

(b) Following consultation with USDA and industry parties involved, an infected flock may be depopulated. This depopulation may take place as much as two to four weeks after the initial outbreak in order to reduce the amount of virus spread by infected virus-shedding birds. If there is depopulation then costs would be covered by state/federal indemnity arrangements.

(c) At the discretion of the State Veterinarian and APHIS, poultry that has been infected with or exposed to H5/H7 LPAI may be allowed to move for controlled marketing in accordance with the initial State response and containment plan and in accordance with the following requirements:

(i) Poultry infected with or exposed to H5/H7 LPAI must not be transported to a market for controlled marketing until 21 days after the acute phase of the infection has concluded, as determined by the State Veterinarian;

(ii) Within 7 days prior to slaughter, each flock to be moved for controlled marketing must be tested for H5/H7 LPAI using a test approved by the State Veterinarian and found to be free of the virus;

(iii) Poultry moved for controlled marketing will not be eligible for indemnity.

(d) At the discretion of the State Veterinarian, H5/H7-negative poultry within quarantine zone may be allowed to move for controlled marketing if the flock is tested within 7 days prior to slaughter using an approved test and found to be free of the virus.

(e) Serologic surveillance using sentinel chickens

(i) Place sentinel chickens after infected houses are 100% AI-positive.

(ii) Clearly identify 20 individual birds (and cage locations) per house. Expose some sentinel chickens to the manure pit also.

(iii) Later, place additional sentinels and take blood samples at 4, 8, and 12 weeks post-placement. Then take blood samples every 90 days.

(f) Limited and controlled vaccination of commercial laying hen, turkey breeder, or turkey meat flocks may be used as a method of eradicating the disease, provided that adequate bio-security is in place with approval of the State Veterinarian. (Please refer to Appendix #3 for proposed implementation of vaccination plan.)

(i) Cost of vaccination will be covered by the producer(s) implementing the vaccination program.

(g) Surveillance of all flocks or farms surrounding an infected flock as per section V.A. of this document will be undertaken, and any other company-owned or other epidemiologically related flocks located outside the surveillance zone will also be monitored. Surveillance will be by use of approved serologic tests and/or RT-PCR for H5 or H7 AI.

(i) Cost of testing other company-owned or related flocks will be covered by the producer(s); epidemiologically unrelated surrounding flocks will be tested at state/federal expense.

(ii) Serologic surveillance will continue weekly until the infected flock has been free of active infection for at least 30 days or until all surrounding and epidemiologically linked flocks or farms have been sufficiently tested and found free of active infection for a period of at least 30 days.

(iii) Flock or farm will be tested according to Table 1, taking into consideration special stipulations (if any) contained in the MOU.

(iv) Pooled (up to five birds/tube) pharyngeal and cloacal swabs will be submitted to UVDL for RT-PCR testing. All testing and collection of samples will be performed on-site using appropriate bio-security precautions.

Table 1. Number of birds sampled for serology, PCR, and/or virus isolation on each premise.[a]

No. birds on premise	Minimum number of birds to be sampled
15 or less……	Sample all
16 to 49……..	15
50 or greater……	30

[a]Assuming a 95% or greater sensitivity and 99% specificity for the diagnostic testing system used, sampling the indicated number of birds will result in a 95% certainty that at least one positive bird will be detected if at least a 25% prevalence of HPAI virus shedding exists among birds on the premises at the time of sample collection

(2) *Highly Pathogenic Avian Influenza (HPAI)*

(a) The flock or farm will be quarantined and strict bio-security measures will be met.

(b) HPAI is an emergency animal disease and therefore infected flock(s) will be depopulated.

(c) Appraisal of the flock is to occur prior to depopulation as required in Title 4-31-3 of the Utah Code (un-annotated).

(d) Surveillance will be the same as that used for LPAI H5/H7

(3) *LPAI other subtypes (not H5/H7)*

(a) Strict bio-security measures will be maintained throughout the life of the flock.

(b) Control measures to be taken are to be presented in writing by poultry producers to state officials.

(c) Surveillance shall be carried out in adjacent or epidemiologically linked flocks until the infection has been shown to no longer be active. This testing shall be in the form of serology, virus isolation, RT-PCR and/or sentinel birds.

(i) Cost of testing will be covered by the producer(s).

(ii) The producer should be able to take samples, when under the direction of an accredited veterinarian.

V. QUARANTINE MEASURES

Quarantine authority resides with the State Veterinarian, Commissioner of Agriculture, and the Governor. Quarantines on all movement of poultry within, into, and out of one or more of the designated Containment Regions will be imposed by the State Veterinarian upon confirmation of the isolation of live AI virus and subject to approval of the Commissioner of Agriculture. Quarantines will be enforced by Department of Agriculture and Food personnel and local law enforcement officers.

(A) Establishment of surveillance zones

(1) *Three distinct zones, with varying intensities of surveillance will be established*:

(a) *Affected Zone* included the area within 5 miles (8 km) of the index flock;

(b) *Surveillance Zone* including the area between 5 and 10 miles (8 and 16 km) of the index flock;

(c) *Buffer Zone* including the area between 10 and 30 miles (16 and 50 km) of the index flock.

Particular attention to surveillance efforts is to be given to company-owned, other epidemiologically related flocks, common breaker plants, feed mills, vaccination crews, movement of other equipment and personnel, recently purchased breeder stock, or recent participation in exhibition shows or swap meets. These potential epidemiologic links shall be rigorously assessed for risk based on levels of biosecurity in place at the time of the outbreak.

(2) *Affected Zone*

(a) The Affected Zone includes the area within 5 miles (8 km) of the index flock. The target population to include in surveillance will be all commercial and non-commercial poultry operations.

(b) *Commercial poultry operations* (defined as any marketing of poultry or poultry products)

(i) Commercial poultry operations will continue to conduct active serologic surveillance as required by this document and the existing MOU.

(ii) Cloacal and tracheal swabs will be collected by or under the supervision of a USDA-accredited veterinarian from poultry in each house, building, or flock located on the operation. Sick and freshly dead birds are targeted for sampling.

(iii) The total number of birds that will be sampled in each unit is presented in Table 1. Serologic surveillance shall continue weekly for a minimum of 30 days after the last active case of influenza is depopulated, processed, or no longer shedding virus.

(iv) Swab samples will be collected weekly for a minimum of 30 days after the last active case of influenza is depopulated, processed, or no longer shedding virus.

(c) *Non-commercial poultry operations*

(i) An inventory of at-risk non-commercial operations will be developed by UDAF and USDA/APHIS/VS of the affected zone. At-risk operations are defined as those with poultry, waterfowl, pigeons, or ratites.

(ii) All at-risk non-commercial operations will have swab samples collected for RT-PCR testing and/or virus isolation. Both cloacal and tracheal samples will be collected from gallinaceous birds and ratites; only cloacal samples will be collected from waterfowl.

(iii) The total number of birds that will be sampled in each unit is presented in Table 1. Serologic surveillance shall continue weekly for a minimum of 30 days after the last active case of influenza is depopulated, processed, or no longer shedding virus.

(iv) Swab samples for RT-PCR testing and/or virus isolation shall be collected weekly for a minimum of 30 days after the last active case of influenza is depopulated, processed, or no longer shedding virus.

(3) *Surveillance Zone*

(a) The surveillance zone includes the area between 5 and 10 miles (8 and 16 km) of the index flock. The target population to include in surveillance includes all commercial and non-commercial poultry operations. Surveillance is also to include, when considered appropriate, any commercial or non-commercial flocks with epidemiologic links to the index flock that might be located outside of the official surveillance and quarantine zones. Surveillance efforts in this zone will be conducted simultaneously with those in the affected zone.

(b) *Commercial poultry operations*

(i) Testing procedures for commercial poultry operations in the surveillance zone will be identical to those applied in the affected zone.

(ii) Cloacal and tracheal swabs samples for RT-PCR testing and/or virus isolation will be collected from all commercial operations at the initiation of this surveillance plan and again 21 days following initial sampling. The total number of birds to be sampled on each operation is presented in Table 1.

(c) *Non-commercial poultry operations*

(i) Testing procedures for non-commercial poultry operations in the surveillance zone will be identical to those applied in the affected zone.

(ii) Cloacal and tracheal swabs samples for RT-PCR testing and/or virus isolation will be collected from each non-commercial operation at the initiation of this surveillance plan and again 21 days following initial sampling. The total number of birds to be sampled on each operation is presented in Table 1.

(4) *Buffer Zone*

(a) The buffer zone includes the area between 10 and 30 miles (16 and 50 km) from the index flock. Surveillance is also to include, when considered appropriate, any commercial or non-commercial flocks with epidemiologic links to the index flock that might be located outside of the official buffer, surveillance, and affected zones.

(b) An inventory of commercial and non-commercial poultry operations will be developed by UDAF and USDA/APHIS/VS in conjunction with the Advisory Committee. All at-risk non-commercial poultry operations within 0.3 miles (0.5 km) of commercial poultry operations will be identified, and tracheal or cloacal swab samples collected once for RT-PCR. The total number of birds to be sampled on each operation is presented in Table 1.

(c) Commercial poultry operations will comply with all other requirements as contained in the existing MOU.

(B) Movement and biosecurity

(a) Movement controls will be implemented relating to live birds, dead birds, eggs, egg flats, litter, trucks, equipment, workers, etc., within the affected zone. These orders will remain in place until surveillance is completed.

(b) No avian species may be moved out of or into the quarantined area.

(c) No poultry products or supplies, *excluding properly washed and sanitized and/or monitored for AI: table eggs, egg products, or processed poultry products in properly sanitized containers and vehicles*, may be moved off the affected premises or out of the quarantine area. Eggs going to breaker must be transported in disposable non-returnable flats. Consider having at least a week's storage capacity for breaker eggs that may be prevented from immediately going to the breaker plant.

(d) Trucks or vehicles entering the affected premises must be thoroughly disinfected prior to entering and leaving the affected premises.

(e) If testing within the affected, surveillance, or buffer zone detects any additional positive flocks or farms, the quarantine zone will be extended accordingly.

(f) Only permitted movements will be allowed until surveillance is completed within all three zones.

(g) Industry and regulatory officials may discuss specific details in the event of an outbreak.

(C) Depopulation and disposal

(a) Small populations will be euthanized humanely and disposed by incineration or burial on premise or in an appropriate landfill. Experience dictates that large numbers of birds can overwhelm incinerators and private arrangements for burial or composting. Larger populations will be disposed by burial at an acceptable landfill with attention to transportation routes and disinfection of transport vehicles.

(b) If depopulation is chosen as the preferred method of dealing with an H/LPAI outbreak, the following methods may be used for disposal of the birds.

(i) In-house or approved on site composting may be used for disposal of birds and is the desired method when practical. (Appendix #4)

(ii) Birds that are not able to be composted may be disposed of in an approved landfill in compliance with Department of Environmental Quality requirements. Vehicles transporting carcasses to the landfill (and upon returning) must be covered and sealed to prevent escape of liquid and airborne material, such as blood, feathers, and dander. (See Appendix # 5 for landfill locations, capacity, and availability.) Contact local landfill(s) and find out what it will take to dispose of carcasses in case of a disease outbreak. Do this as soon as possible, before the crisis occurs.

(iii) Smaller flocks may be incinerated using the UDAF T400 Airburner, in compliance with Department of Environmental Quality requirements, if conditions permit.

(D) Euthanasia

Only American Veterinary Medical Association (AVMA) and/or APHIS-approved methods of euthanasia shall be employed.

(E) Premises decontamination and disinfection

(1) *Preparation for cleaning and disinfection*. Following the depopulation or controlled marketing of all poultry infected with or exposed to H5/H7 LPAI on a premises, the following procedures will be completed prior to cleaning and disinfection:

(a) Secure and remove all feathers that might blow around outside the house in which the infected or exposed poultry were held by raking them together and burning the pile;

(b) Apply insecticides and rodenticides immediately after the removal of the birds, before the house cools;

(c) Close the house in which the poultry were held, maintaining just enough ventilation to remove moisture. Leave the house undisturbed for a minimum of 21 days and for as long as possible thereafter, in order to allow as much H5/H7 LPAI virus as possible to die a natural death.

(d) Heat the house to 100 °F for the 72 hours prior to cleaning and disinfection.

(2) *Cleaning and disinfection*. All premises, conveyances, and materials that came into contact with poultry that were infected with or exposed to H5/H7 LPAI must be cleaned and disinfected. Cleaning and disinfection must be performed on all buildings that came into contact with poultry that were infected with or exposed to H5/H7 LPAI within a premises, including pump houses and service areas. To accomplish cleaning and disinfection, the following procedures should be completed:

(a) *Disposal of manure, debris, and feed*. Clean up all manure, debris, and feed. Compost manure, debris, and feed in the house if possible. If this is not possible, set up a system for hauling manure, debris, and feed to an approved site for burial, piling, or composting. Do not clean out the house or move or spread litter until any H5/H7 LPAI virus that may have contaminated the manure and litter is dead, as determined by the State Veterinarian and in accordance with the initial State response and containment plan. If composting is used as a disposal method, manure and litter should be composted in accordance with State and local regulations. If litter is piled, the litter pile must be covered and allowed to sit undisturbed for an amount of time approved by the State Veterinarian and APHIS and in accordance the initial State response and containment plan. Drying and heat *in situ* over time are effective and may be used in place of composting if weather conditions or conditions in the building are favorable. After use, equipment used to clean out manure, debris, and feed must be washed, disinfected, and inspected at the site to which the manure and litter was transported. In the case of inclement weather, the equipment may be washed, disinfected, and inspected at off-site wash stations at the discretion of the State Veterinarian and APHIS.

(b) *Cleaning of premises and materials*. Manure and all organic material shall be completely removed from infected buildings. If taken to an approved off-site location, it must be transported in a covered and leak-proof container. The sides of the building shall be scraped to remove all residual organic material that might harbor virus. Manure shall be buried or composted on the premises or double bagged and taken to a designated landfill or incinerator according to an approved transportation plan, and taken to an approved off-site location in a covered and leak-proof container. Cleaning and washing should be thorough to ensure that all materials or substances contaminated with H5/H7 LPAI virus, especially manure, dried blood, and other organic materials, are removed from all surfaces. Spray all contaminated surfaces above the floor with soap and water to knock dust down to the floor, using no more water than necessary. Wash equipment and houses with soap and water. Disassemble equipment as required to clean all contaminated surfaces. Special attention should be given to automatic feeders and other closed areas to

ensure adequate cleaning. Inspect houses and equipment to ensure that cleaning has removed all contaminated materials or substances and let houses and equipment dry completely before applying disinfectant.

(c) *Disinfection of premises and materials*. When cleaning has been completed and all surfaces are dry, all interior surfaces of the structure should be saturated with an approved disinfectant. U.S. Environmental Protection Agency (EPA)-registered products that have a claim of being effective against influenza viruses should be used. All disinfectants are to be applied according to manufacturer's directions. (See Appendix #6 for EPA-registered disinfectants.)

A power spray unit should be used to spray the disinfectant on all surfaces, making sure that the disinfectant gets into cracks and crevices. Special attention should be given to automatic feeders and other closed areas to ensure adequate disinfection.

(d) *Cleaning and disinfection of conveyances*. Clean and disinfect all trucks and vehicles used in transporting affected poultry or materials before soil dries in place. Both exterior, including the undercarriage, and interior surfaces, including truck cabs, must be cleaned. The interior of the truck cabs should be washed with clean water and sponged with an approved disinfectant. Manure and litter removed from these vehicles should be and disposed of at an approved site for burial, piling, or composting.

(3) *Activities after cleaning and disinfection.* Premises should be checked for presence of virus before repopulation by PCR testing from drag swabs obtained from equipment, floor, and walls. Placement of sentinel birds may be required before and/or after repopulation at the discretion of the State Veterinarian. If deemed necessary to place sentinel birds before total building repopulation is allowed, 30 clearly identified AI-negative chickens (or turkeys, depending on the facilities) will be placed in the building. If a cage facility, 20 chickens will be dispersed in cages throughout the facilities and 10 chickens will be exposed to the manure pit. Birds will be serologically tested for presence of AI antibodies and PCR-tested for presence of virus weekly for two weeks. The premises may not be restocked with poultry until the disease is deemed to be eradicated by state and federal animal health officials. After repopulation, LPAI surveillance will resume as outlined in Section III (4) (b) and (c).

(F) Biosecurity practices

(1) Ongoing biosecurity practices are to be followed before and after outbreaks according to Appendix #2 and the MOU. Additional guidelines are found at the following web sites:

(a) Commercial turkeys – *Bio-security Principles: Protecting the Utah Turkey Industry*, USU Extension Fact Sheet AG/Poultry Health/Biosecurity/03, http://extension.usu.edu/files/publications/Biosecurity03.pdf

(b) Exhibition poultry producers and exhibitors – *Bio-security Principles: Protecting Your Investment*, USU Extension Fact Sheet AG/Poultry/Health/Biosecurity/01 http://extension.usu.edu/files/agpubs/poulprinciples.pdf

VI. PUBLIC RELATIONS RESPONSE/COMMUNICATION

UDAF and USDA/APHIS/VS will strive to inform the partners of the situation via a contact list including the AI Advisory Committee, Accredited Veterinarians, appropriate industry members, and all signatory parties of an MOU regarding this initial State response and containment plan. (See Appendix #7 for list of contacts.)

(A) Pre-outbreak public awareness activities, to be carried out by Cooperative Extension and UDAF, will be accomplished through appropriate radio and TV communication, fact sheets, group presentations, and web site information: (http://extension.usu.edu/; http://ag.utah.gov/pressrel/AvianFluInfo.html).

(B) All inquiries by public media about serologic findings, outbreaks, or other questions dealing with actual or suspected cases of AI infection in Utah are to be directed to the State Veterinarian's office.

(C) Information released to the public should be timely and include the nature and extent of the emergency; impacted or potentially affected areas of the State; human health implications or lack thereof; and activities being carried out by government officials and industry leaders to respond to the outbreak or mitigate its effects. Released information may also include newspaper inserts or supplements which provide detailed information the public could use, and information about the steps being taken by the state and industry to protect them.

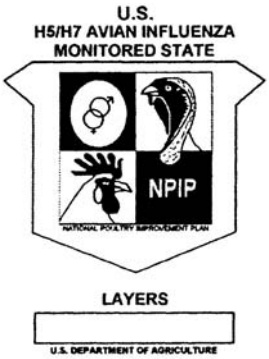
(D) The use of radio and television may include prepared announcements, interviews, question and answer sessions, live footage, and so forth depending on the circumstances.

Appendix #1

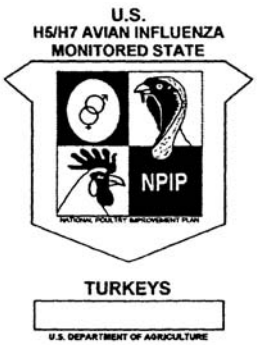
Avian influenza surveillance under the NPIP is conducted at different levels. The NPIP awards an "US H5/H7 Avian Influenza Monitored" status to commercial flocks that satisfy the requirements for avian influenza program participation. Participating flocks (including affiliated flocks), products produced from them, and States which have met the respective requirements may be designated by the following terms or illustrative designs:

(a) *U.S. H5/H7 Avian Influenza Monitored.*

(b) *U.S. H5/H7 Avian Influenza Monitored State, Layers.*



(c) *U.S. H5/H7 Avian Influenza Monitored State, Turkeys.*



Additionally, NPIP also grants an H5/H7 Avian Influenza Clean classification for turkey breeding flocks.

Appendix #2

MINIMUM BIOSECURITY MEASURES TO PREVENT TRANSMISSION OF AVIAN INFLUENZA

ISOLATION refers to the confinement of animals within a controlled environment. AIV may be mechanically transmitted by anything that can walk, crawl, or fly from farm to farm.

1. Clean out vegetation around poultry houses to remove shelter and food for possible carriers.
2. Institute a vector control program for insect, mammal and avian vectors. These vectors are important because they can mechanically carry infected feces from one house or premises to another.
    a. Improve barriers to prevent the access of wild birds to poultry houses.
    b. Institute an insect control program. Flies of several species are important in the transfer of AIV.
    c. Rodents have implicated in the transfer of AIV. Rodent control and preventing their traffic between houses on a single premises are essential.
3. Prevent the accumulation of standing water. This is a great attraction to migrating waterfowl and shorebirds, both of which have been implicated in AI outbreaks/transmission.
4. Limit sources of food for wild and free-flying birds. Clean up spills when they happen.
5. Do not allow employees to raise their own poultry or attend poultry markets or shows.
6. Freshly laundered clothes for employees should be changed into at the farm. These clothes should be left at the farm at the end of the day.
7. Employees should shower out at the end of the day.
8. The interior of cars/vehicles should be sprayed for flies prior to leaving the premises.
9. Manure and dead birds may not move from the premises unless appropriate bio-security principles are adhered to.

The spread of avian influenza follows the movement of people and equipment.

1. Do not allow movement of people, your employees or other individuals, from your farm to other farms.
2. Conduct business by telephone. Inform other farms of the need for heightened bio-security.
3. Do not let truck drivers, repairmen, or delivery personnel step out onto your facility without new protective foot covering and coveralls. Identify local truck washes that may be used to clean and disinfect vehicles before entering premises and again upon leaving area. Give the locations and addresses to all drivers.
4. Use gates and signs to control traffic.

5. Wash and disinfect all vehicles prior to them leaving the farm. Carry disinfectant spray (e.g. Lysol®), disposable plastic boots, can of fly spray, and alcohol gel hand sanitizer in all company vehicles.
6. Avoid movement of equipment off of the farm. Wash and disinfect prior to equipment leaving the farm.

Appendix #3

VACCINATION STRATEGY

Turkeys

Vaccination Approach: If an outbreak of LPAI H5/H7 occurs in the Sanpete Valley, vaccination should be considered as one of the control measures employed, mainly because of the concentrated multi-age density of the turkey population. Experiences with previous outbreaks of avian influenza in Utah repeatedly show that without a widespread vaccination program included in the overall disease reduction strategy, influenza viruses cycle within the turkey population infecting and causing clinical disease in younger naïve flocks. The use of an autogenous killed virus vaccination program in 1995 during a LPAI H7N3 outbreak proved very effective in shortening the duration of the epornitic and reducing viral spread.

Because of the continuous placement of naïve flocks of new poults, main vaccination emphasis will be aimed at turkeys during the brooding phase. General anticipated procedure would be to vaccinate three to four-week-old poults while still in the brooder buildings, and then allow them to remain in the brooder for a minimum of one week before movement to grow-out facilities. Secondary emphasis will be to vaccinate recently moved out flocks, staying within the vaccination withdrawal period necessary before allowing the turkeys to be slaughtered. This in essence would become a "temporal ring vaccination" rather than an approach based solely on geographic locale. [3] Any use of such vaccination programs would only be done after seeking and obtaining permission from USDA for the production and use of the vaccine.

Surveillance. Once the vaccination program is firmly established, focus will be turned to serologic monitoring for virus spread. Non-vaccinated sentinel turkeys will be placed in vaccinated flocks strategically located in various areas of the valley. These leg-banded sentinels will be allowed to roam freely within the flock. The sentinel turkeys will be bled monthly to check for sero-conversion to avian influenza, and/or tracheal swabs collected for RT-PCR, until their corresponding flock is marketed.

Commercial Layer Operations

General anticipated procedure would be to vaccinate chicks and pullets while still in the brooder/grow-out buildings, and allowing them to remain in those buildings for at least one week before moving to layer facilities. Secondary emphasis will be to vaccinate layer flocks either exposed or at extreme risk of viral exposure. All vaccination will be done staying within the withdrawal period necessary before marketing spent hens.

Surveillance. Once the vaccination program is firmly established, focus will be turned to serologic monitoring for virus spread. Non-vaccinated sentinel pullets or hens will be placed in vaccinated flocks. The sentinel birds will be bled monthly to check for sero-conversion to avian influenza, and/or tracheal swabs collected for RT-PCR, until their corresponding flock is depopulated.

Non-Commercial Poultry and Other Birds

[3] This vaccination and corresponding surveillance strategy was approved by VS-USDA-APHIS during the 1995 H7N3 LPAI outbreak in Utah turkeys.

No vaccination program is anticipated in birds other than commercial chickens and turkeys.

Appendix #4

PROCEDURE FOR IN-HOUSE COMPOSTING

DEAD OR EUTHANIZED BIRDS infected with AIV may be composted in the following manner:

Supplies:
Personal protective equipment (Tyvek® suits, boots, gloves, respirators)
Hand tools (square point long handle shovels, pitchforks, long handle rakes and hoes, stick broom, drill with feeder winch attachment, ladder, hammer, crowbar and cutting pliers.)
Personal needs (toilet facilities, cell phone, food, drinks, paper towels and disinfectant hand wipes.)
Rodenticide and insecticide
Composting thermometers
Carbon source (litter, sawdust, etc.)
Water hose or water supply
Warning signs
Tarp, poly or fleece with anchors
Cleaning & disinfectant supplies, large garbage bags, bucket, brush, hand sprayer
Poly removal supplies (tow rope, fuel source, lighter, disposal approval)

Equipment and Personnel:
Midsize Skid-Steer Loader (~ 1.25 –1.5 Cubic Yard Bucket) and Skilled Operator

Sanitation Equipment:
A high pressure washer must be on site to clean and disinfect equipment and premises.

Composting Procedures:
Layering
Shredding and Piling
Mixing and Piling

Procedure for all methods:
Let birds consume all feed
Raise the feeder and drinker lines

Select Composting Method Based On Depopulation Procedure

If the depopulation procedure concentrates the carcasses in a small section of the house, the layering option may be appropriate. Where carcasses are distributed more evenly over the litter surface, the mix and pile option is recommended.

Layering method:

1. Create a litter windrow that has a 10 to 12 ft. wide base.
2. Scoop the dead birds with the loader and lay them on top of the litter windrow base.
3. Spread the carcasses evenly with a rake or pitchfork until they are about 8 to 10 inches thick.
4. Repeat the layering procedure as needed until the pile is 6 feet high.(If the height of the poultry house prevents a 6 foot high windrow, make only two layers which will be approximately 3 to 4 feet high.)
5. Deposit a 6 to 8 inch layer of litter/sawdust "cap" over the birds with a foot overlap on the sides. *Leave no carcasses or bird parts exposed*.

Shredding and Piling Method:

This method involves shredding carcasses and tilling them into the existing litter base followed by windrowing the mixture. This method may be beneficial for composting large carcasses such as roasters or turkeys. It also does not require the addition of water, as moisture from the shredded carcasses will be adequate to support the composting process.

1. Remove carcasses one bucket-width wide from along the side walls and spread them evenly in the center of the house.
2. Shred the carcasses using a tiller attached to a skid steer loader or a 3-point hitch, PTO driven unit for farm tractor.
    a) Make at least two passes to ensure adequate shredding
    b) use sharp tines and high rpm
    c) use the best angle and direction of rotation for shredding
3. An alternative to shredding is crushing carcasses with a rubber tire loader.
4. Roll the carcasses into the litter/sawdust windrow.
5. Pile the shredded carcass/litter mixture into a properly shaped windrow (12 to 14 ft. wide and 3 to 5 ft. high). Cap the windrow with litter to cover exposed carcasses.

Mixing and Piling Method:

This method involves mixing carcasses into the existing litter base and forming windrows. (Involves the least time, labor and materials.)

1. Remove carcasses one bucket-width wide from along the sidewall and spread them evenly in the center of the house. (If litter is inadequate and supplemental sawdust is required, this step is not necessary.)
2. Starting with a three-inch minimum litter base, use the feed line as a guide and mix the carcasses with the litter to start the formation of the windrow. Continue to roll the materials from along the sides together to form a windrow 10 –12 feet wide in the center of the house.
3. As with all methods the pile must be covered with a layer of litter or sawdust 4 to 6 inches thick. *All carcasses must be covered!*

Any surplus litter not used in the composting process should also be placed in windrows to inactivate pathogens.

All methods require turning:

1. After 10 to 14 days, the compost temperature will decline. As it drops below ~125^{o}F (52^{o}C), turn the windrows.
2. Turn the windrow inside the house or relocate the stockpile outside, place in shed or windrow and cover it with fleece or poly.
3. Scrape along the edges of the turned windrow and deposit material on the pile.
4. Cap the new windrow with a minimum of four inches of litter or sawdust to cover any exposed tissue on the surface.
5. After turning the compost windrow, the temperature should equal or exceed that in the initial windrow. Monitor and record temperatures.
6. After an additional 2-3 weeks, the compost material may be land-applied.

Contact information and author:

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Appendix #5

LANDFILL LOCATIONS AND AVAILABILITY IN THE STATE OF UTAH

County	Landfill name	Physical address	Potential capacity (tons/day)	Contact person	Phone
Sanpete Co	White Hills/ Ephraim	Mayfield		Doug Bjerregaard	(435) 528-3255
Cache	Logan City /Cache Co	Logan UT		Issa Hamud	(495) 716-9752
Utah Co	So Utah Valley Solid Waste/Bayview	Springville		Richard Henry	(801) 489-3027
Utah Co	Payson City	Payson		Kent Fowden	(801) 465-5230
Tooele Co	Tooele Co/ Ibapah	Tooele		Dave Lore	(435) 833-9520
Millard Co	Millard Co/Fillmore	Delta		Sherly Dekker	(435) 864-1400

Appendix #6
REGISTERED DISINFECTANTS WITH LABEL CLAIMS FOR AVIAN (BIRD) FLU

Registration Number	Product Name	*Active Ingredient	Formulation Type	**Manufacturer Contact Information	
1	106-72	Maxima 128	5, 8, 9, 17	soluble concentrate	Brulin & Company, Inc.
2	106-73	Maxima 256	5, 8, 9, 17	soluble concentrate	Brulin & Company, Inc.
3	106-79	Broadspec 256	5, 8, 9, 17	soluble concentrate	Brulin & Company, Inc.
4	106-81	Maxima RTU	5, 8, 9, 17	solution-ready to use	Brulin & Company, Inc.
5	134-65	DC&R Disinfectant	2, 7, 11	soluble concentrate	Hess & Clark, Inc.
6	211-25	Pheno Cen Germicidal Detergent	15, 18, 20	soluble concentrate	Central Solutions, Inc.
7	211-32	Pheno Cen Spray Disinfectant	10, 14	pressurized liquid	Central Solutions, Inc.
8	211-50	Q5.5-5 NPB 2.5 HW	5, 8, 9, 17	soluble concentrate	Central Solutions, Inc.
9	211-62	Low pH Phenolic	1, 14	soluble concentrate	Central Solutions, Inc.
10	303-91	Hi-Tor Plus Germicidal	5, 8	soluble concentrate	Huntington Professional
11	464-689	Ucarsan Sanitizer 420	12	soluble concentrate	The Dow Chemical Company
12	464-696	Ucarsan Sanitizer 4128	12	soluble concentrate	The Dow Chemical Company
13	464-700	Ucarcide 14 Antimicrobial	5, 12	solution-ready to use	The Dow Chemical Company
14	464-702	Ucarcide 42 Antimicrobial	5, 12	solution-ready to use	The Dow Chemical Company
15	464-715	Ucarsan 442 Sanitizer	5, 12	soluble concentrate	The Dow Chemical Company
16	464-716	Ucarsan 414 Sanitizer	5, 12	soluble concentrate	The Dow Chemical Company
17	1043-91	LpH Master Product	3, 14	soluble concentrate	Steris Corporation

18	1677-129	Oxonia Active	13, 19	soluble concentrate	Ecolab, Inc.
19	1677-158	Vortexx	13, 16, 19	soluble concentrate	Ecolab, Inc.
20	1677-203	OxySept LDI	13, 19	soluble concentrate	Ecolab, Inc.
21	1839-86	BTC 2125 M 10% Solution	4, 6	soluble concentrate	Stepan Company
22	1839-154	Scented 10% BTC 2125M Disinfectant	4, 6	soluble concentrate	Stepan Company
23	1839-155	BTC 2125M 20% Solution	4, 6	soluble concentrate	Stepan Company
24	1839-173	7.5% BTC 885 Disinfectant	5, 8, 9, 17	soluble concentrate	Stepan Company
25	3838-36	Quat 44	4, 6	soluble concentrate	Essential Industries, Inc.
26	3838-37	Quat Rinse	4, 6	soluble concentrate	Essential Industries, Inc.
27	3862-177	Tek-Trol Disinfectant	1, 3, 14	soluble concentrate	ABC Compounding Co.
28	6836-70	Bardac 205M 7.5B	4, 6, 7, 15	soluble concentrate	Lonza, Inc.
-	6836-70	Bardac 205M-7.5B	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
29	6836-71	Lonza Formulation Y-59	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
30	6836-75	Lonza Formulation S-21	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
31	6838-77	Lonza Formulation S-18	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
32	6836-78	Lonza Formulation R-82	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
33	6836-136	Lonza Formulation S-18F	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
34	6839-139	Lonza Formulation R-82F	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
35	6836-140	Lonza	5, 8, 9, 17	soluble	Lonza, Inc.

		Formulation S-21F		concentrate	
36	6836-152	Lonza Formulation DC-130	5, 8, 9, 17	solution-ready to use	Lonza, Inc.
37	6836-233	Bardac 205M-50	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
38	6836-252	Phencide 256	1, 14	soluble concentrate	Lonza, Inc.
39	6836-253	Phenocide 128	1, 14	soluble concentrate	Lonza, Inc.
40	6836-266	Bardac 205M-10	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
41	6836-277	Bardac 205M 1.30	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
42	6836-278	Bardac 205M 14.08	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
43	6836-302	Bardac 205M 5.2	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
44	6836-303	Bardac 205M 7.5B	5, 8, 9, 17	soluble concentrate	Lonza, Inc.
45	10324-56	Maquat 256	4, 6	soluble concentrate	Mason Chemical Company
46	10324-58	Maquat 128	4, 6	soluble concentrate	Mason Chemical Company
47	10324-59	Maquat 64	4, 6	soluble concentrate	Mason Chemical Company
48	10324-63	Maquat 10	4, 6	soluble concentrate	Mason Chemical Company
49	10324-67	Maquat MQ615-AS	5, 8, 9, 17	soluble concentrate	Mason Chemical Company
50	10324-72	Maquat 615 HD	5, 8, 9, 17	soluble concentrate	Mason Chemical Company
51	10324-80	Maquat 5.5M	5, 8, 9, 17	soluble concentrate	Mason Chemical Company
52	10324-81	Maquat 705M	5, 8, 9, 17	soluble concentrate	Mason Chemical Company
53	10324-85	Maquat 86 M	5, 8, 9, 17	solution-ready to use	Mason Chemical Company
54	10324-94	Maquat 20M	4, 6	soluble concentrate	Mason Chemical Company
55	10324-96	Maquat 50DS	4, 6	soluble concentrate	Mason Chemical Company

56	10324-99	Maquat 10	4, 6	soluble concentrate	Mason Chemical Company
57	10324-115	Maquat 750 M	5, 8, 9, 17	soluble concentrate	Mason Chemical Company
58	10324-117	Maquat 710 M	5, 8, 9, 17	soluble concentrate	Mason Chemical Company
59	10324-118	Maquat 256 EBC	4, 6	soluble concentrate	Mason Chemical Company
60	10324-119	Maquat 128 EBC	4, 6	soluble concentrate	Mason Chemical Company
61	10324-120	Maquat 64 EBC	4, 6	soluble concentrate	Mason Chemical Company
62	10324-131	Maquat A	5, 8, 9, 17	soluble concentrate	Mason Chemical Company
63	10324-142	Maquat MQ2425 M 14	4, 6	soluble concentrate	Mason Chemical Company
64	10324-143	Maquat 10B	4, 6	soluble concentrate	Mason Chemical Company
65	10324-145	Maquat FP	4, 6	soluble concentrate	Mason Chemical Company
66	10324-162	Maquat 2420 Citrus	5, 8	soluble concentrate	Mason Chemical Company
67	10324-164	Maquat 256 PD	4, 6	soluble concentrate	Mason Chemical Company
68	11600-4	Sanox II	5, 8, 9, 17	soluble concentrate	Conklin Co., Inc.
69	47371-6	Formulation HS 652Q	5, 8	soluble concentrate	H&S Chemicals Division
70	47371-7	Formulation HS 821Q	5, 8	soluble concentrate	H&S Chemicals Division
71	47371-36	HS-867Q	5, 8	soluble concentrate	H&S Chemicals Division
72	47371-37	HS-267Q germicidal Cleaner	5, 8	soluble concentrate	H&S Chemicals Division
73	47371-141	Formulation HH 652Q	5, 8	soluble concentrate	H&S Chemicals Division
74	61178-1	D-125	4, 6	soluble concentrate	Microgen Inc.
75	61178-2	Public Places	4, 6	solution-ready to use	Microgen Inc.
76	61178-4	Public Places Towelette	4, 6	impregnated materials	Microgen Inc.

77	61178-5	CCX-151	4, 6	soluble concentrate	Microgen Inc.
78	61178-6	D-128	4, 6	soluble concentrate	Microgen Inc.
79	66171-1	Advantage 256	1, 3, 14	soluble concentrate	Preserve International
80	66171-6	Dyne-O-Might	24	soluble concentrate	Preserve International
81	66171-7	Synergize	7, 12	soluble concentrate	Preserve International
82	66243-1	Odo-Ban Ready to Use	5	solution-ready to use	Clean Control Corporation
83	66243-2	Odo-Ban	5	soluble concentrate	Clean Control Corporation
84	66243-3	Quik Control	5, 8, 9, 17	soluble concentrate	Clean Control Corporation
85	67619-9	PJW-622	4, 6	impregnated materials	Clorox Professional Products Co.
86	70263-6	Microban QGC	5, 8, 9, 17	soluble concentrate	Microban Systems, Inc.
87	70623-8	Microban Professional	5, 8, 9, 17	solution-ready to use	Microban Systems, Inc.
88	70627-2	Disinfectant DC 100	4, 6	solution-ready to use	JohnsonDiversey, Inc.
89	70627-6	Phenolic Disinfectant HG	1, 14	soluble concentrate	JohnsonDiversey, Inc.
90	70627-10	Johnson's Forward Cleaner	5	soluble concentrate	JohnsonDiversey, Inc.
91	70627-15	Johnson's Blue Chip Germicidal	5	soluble concentrate	JohnsonDiversey, Inc.
92	70627-21	Virex II 128	5, 8	soluble concentrate	JohnsonDiversey, Inc.
93	70627-22	Virex RTU	5, 8	solution-ready to use	JohnsonDiversey, Inc.
94	70627-23	Virex II 64	5, 8	soluble concentrate	JohnsonDiversey, Inc.
95	70627-24	Virex II 256	5, 8	soluble concentrate	JohnsonDiversey, Inc.
96	71355-1	Virocid	5, 8, 12	soluble concentrate	CID Lines, NV/SA

97	71654-6	Virkon S	21, 22	soluble concentrate	DuPont Chemical Solutions
98	71847-2	Klor-Kleen	23	pelletted/tabletted	Medentech, Ltd.
99	81073-1	Peridox	13, 19	soluble concentrate	Clean Earth Technologies,

898

*Active Ingredient	Active Ingredient Key
1	2-Benzyl-4-chlorophenol (62201)
2	2-(Hydroxymethyl)-2-nitro-1,3-propanediol (83902)
3	4-tert-Amylphenol (64101)
4	Alkyl dimethyl benzyl ammonium chloride (60%C14, 30%C16, 5%C18, 5%C12) (69104)
5	Alkyl dimethyl benzyl ammonium chloride (50%C14, 40%C12, 10%C16) (69105)
6	Alkyl dimethyl ethylbenzyl ammonium chloride (68%C12, 32%C14) (69154)
7	Alkyl dimethyl benzyl ammonium chloride (67%C12, 25%C14, 7%C16, 1%C18) (69175)
8	Didecyl dimethyl ammonium chloride (69149)
9	Dioctyl dimethyl ammonium chloride (69166)
10	Ethyl alcohol (1501)
11	Formaldehyde (43001)
12	Glutaraldehyde (43901)
13	Hydrogen peroxide (595)
14	o-Phenylphenol (64103)
15	o-Phenylphenol, potassium salt (64108)
16	Octanoic acid (128919)
17	Octyl decyl dimethyl ammonium chloride (69165)
18	p-tert-Amylphenol, potassium salt (64111)
19	Peroxyacetic acid (63201)
20	Potassium 2-benzyl-4-chlorophenate (62202)
21	Potassium peroxymonosulfate (63604)
22	Sodium chloride (13905)
23	Sodium dichloro-s-triazinetrione (81404)
24	Iodine

899

**Manufacturer Contact Information			
ABC Compounding Co. P.O. Box 16247 Atlanta, GA 30321-0247 (800) 593-1021 (262) 539-1122	Brulin & Company, Inc P.O. Box 270 Indianapolis, IN 46206-0270 (800) 776-7149 (317) 923-3211	Central Solutions, Inc. P.O. Box 15276 3130 Brinkerhoff Road Kansas City, KS 66115 (800) 255-0262 (913) 621-6542	CIDLines, V/SA Waterpoortstraat 2 B 8900 IEPER Belgium, Europe 011-32-57-217877
Clean Earth Technologies, LLC 13378 Lakefront Drive Earth City, MO 63045 (866) 843-6394 (314) 222-4640	Clean Control Corporation P.O. Box 7444 Warner Robins, GA 31095 (800) 841-3904 (478) 922-5340	Clorox Professional Products Co. c/o PS&RC P.O. Box 493 Pleasanton, CA 94566-0803 (888) 797-7225 (510) 847-6842	Conklin Co., Inc. Consumer Products Division 551 Valley Park Drive P.O. Box 155 Shakopee, MN 55379-0155 (800) 394-6076 (952) 445-6010
The Dow Chemical Company Midland, MI 48674 (800) 447-4369 (989) 636-1000	DuPont Chemical Solutions Enterprise P.O. Box 80402 Wilmington, DE 19880 (800) 441-7515	Ecolab, Inc. 370 N. Wabasha Steet St. Paul, MN 55102 (800) 332-6522	Essential Industries, Inc. P.O. Box 12 Merton, WI 53056-0012 (800) 593-1021 (262) 539-1122
Hess & Clark Inc. 110 Hopkins Drive Randolph, WI 53956-1316 (608) 221-7378	H&S Chemicals Division c/o Lonza, Inc. 90 Boroline Road Allendale, NJ 07401 (800) 365-8324 (201) 316-3200	Huntington Professional Products A Service of Ecolab, Inc. 370 N. Wabasha Steet St. Paul, MN 55102 (800) 332-6522	Johnson Diversey, Inc. 8310 16th Street Sturtevant, WI 53177 (800) 851-7145 (262) 631-4001
Lonza, Inc. 90 Boroline Road Allendale, NJ 07401 (800) 365-8324 (201) 316-3200	Mason Chemical Company 721 W. Algonquin Road Arlington Heights, IL 60005 (800) 362-1855 (847) 290-1621	Medentech, Ltd. Whitemill Industrial Estate Clonard Road Wexford, Ireland 353 53 60040	Microban Systems, Inc 1135 Braddock Avenue Braddock, PA 15104 (800) 332-6037 (412) 264-8370
Microgen Inc. 33 Clinton Road, Suite 102 West Caldwell, NJ 07006 (800) 420-7522 (973) 575-9025	Preserve International P.O. Box 10527 Zephyr Cove, NV 89448 (800) 995-1607	Stepan Company 22 West Frontage Road Northfield, IL 60093 (800) 745-7837 (847) 446-7500	Steris Corporation 7501 Page Avenue St. Louis, MO 63133 (800) 444-9009 Option 4 or Ext. 25064

Source: http://www.epa.gov/pesticides/factsheets/avian_flu_products.htm

Appendix #7

CONTACT LIST FOR H/LPAI OUTBREAK

Position	Name	Organization	Phone No. (Principal)	Email address
State Officials				
State Veterinarian	L Earl Rogers, DVM	UDAF	801-538-7162	erogers@utah.gov
NPIP Contact Person\ Assistant State Veterinarian	Bruce King, DVM	UDAF	801-520-4309	bking@utah.gov
Field Veterinarian	Wyatt Frampton, DVM	UDAF	801-538-7165	WFRAMPTON@utah.gov
Field Veterinarian	Robert Erickson, DVM	UDAF	801-538-4910	rerickson@utah.gov
Field Veterinarian	Warren J. Hess,DVM	UDAF	801-538-4910	wjhess@utah.gov
Utah State Epidemiologist	Patrick Luedtke, MD	UDOH	801-538-6191 1-888-EPI-UTAH	pluedtke@utah.gov
Wildlife	Leslie McFarlane	UDWR	801-538-4891	Lesliemcfarlane@utah.gov
Director, Animal Ind. DEQ, Solid Waste	Terry Menlove Matt Sullivan	UDAF DEQ	801-538-7166 801-538-6858	tmenlove@utah.gov MSULLIVAN@utah.gov
Federal Officials				
AVIC	Robert DeCarolis, DVM	USDA/APHIS/VS	801-524-5010	Robert.A.Decarolis@aphis.usda.gov
State Emergency Coordinator	Lee R. Hall, DVM	USDA/APHIS/VS	801-524-5010	
USU Extension				
Extension veterinarian	Dr. Kerry Rood	Utah State University	435-797-1882	krood@usu.edu
Extension poultry specialist	Dr. David Frame	Utah State University	435-283-7586	davidf@ext.usu.edu
Director of Utah Veterinary Diagnostic Laboratory	Dr. Tom Baldwin	Utah State University	435-797-1883	tjbald@cc.usu.edu
Egg\Chicken Producers				
Owner	Chris Shepherd	Bud Shepherd & Son's	801-798-2593	chris@shepherdeggs.com
Owner	Dick Fassio	Fassio Egg Farm	801-969-9831	eggs@xmission.com
Owner	Scott Patton	Delta Egg Farm	435-864-4991	spatton@cmfoods.com
Owner	Daren Rigtrupp	Rigtrupp Egg Farm	801-667-3567	
Owner	Dave Woodward	Ritewood Egg Farm		
Turkey Producers				
	Dr. Terry Olson			

	David Baldwin			
	Matt Cook			
Game birds				
Pheasant Hatchery	Royd Hatt	Hatt Ranch	435-564-8840	
Exhibition poultry				
Pigeons				
Ratites				
Game fowl				
Private practitioners				
Avian Veterinarian	Dr. Mark C. Bland	Poultry Vet. Consultant	209-604-0381	markbland@earthlink.net
Avian Veterinarian	Marty Orr, DVM	Bird & Exotic Pet Hospital	801-565-1263	drmorr@aol.com
Avian Veterinarian	Dana Clark, DVM Evan Gubler, DVM	Lakeview Animal Hospital	801-298-2314	Lakeviewanimalhosp.com
Avian Veterinarian	Doug Folland, DVM	Parrish Creek Veterinary Clinic	801-298-2014	
Avian Veterinarian		Amor Animal Hospital		

906